NOvA Computing Needs

P. Shanahan - Fermilab
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NOvA Overview

- 1st, I am more "Offline Coordinator"

  ▸ I can't comment authoritatively on other aspects of computing

- Neutrino appearance experiment

  ▸ Will use NuMI beam, a 25 kT detector at Ash River, MN, ~20T Near Detector at Fermilab, and a smaller integration prototype in the MINOS Service Building

- CD-1 is all-but-official

- Next slides: Offline goals and needs

  ▸ A slightly more formal document as requested by Vicky is in the works. It will supercede this talk in case of conflicts.

Near Term

- Dominated by studies for CD-2 review (~September)

    ‣ Detector Simulations: geometry changes, Near Detector Simulations, event pile up, etc.

    ‣ Improvement in reconstruction and ID algorithms

    ‣ Event display

- There are NOvA collaborators interested in and willing to work on these topics

    ‣ Needs from CD: A CD-physicist interested in the experiment would be a great addition

    ‣ We think most of what we need can be accomplished on FNALU, with a bit of tweaking help from Liason.

Near Term, cont.

- Database

  ▸ Factories will be coming on line in less than a year

  ▸ Need 1st pass on Database very soon

  ▸ Efforts from CD already - e.g., NOvA note:

    - NOvA Online Database Requirements

  ▸ Implementing hardware and software required for the DB would require significant continued CD effort.

Mid/Long-term

- Mid: Adoption or creation of C++ based simulation framework

  ‣ Likely to feed off of MINOS

  ‣ MINOS/NOvA interests overlap significantly

    ● MINOS expertise will be very valuable in NOvA

- Long:

  ‣ All the typical issues, e.g. definition of data storage needs

  ‣ Dedicated NOvA Computing HW resources at FNAL?

  ‣ robust offline framework

    ● 1st neutrino data ~end 2007 in Integration Prototype

Summary

- Near Term NOvA Offline needs from CD:

  ▸ Database construction

  ▸ A CD physicist a la Liz

  ▸ Working with liason and/or CD physicist to make existing computing environment a bit more productive, especially for non-MINOS newcomers.

- Longer term

  ▸ Programmer to help with simulation framework?
    - Someone with much MINOS experience.

  ▸ Dedicated NOvA cluster?

- A more precise view of needs will come into view over following months.